Scientific Areas of Integrated Review Groups (IRGs)

For a listing of the Scientific Review Administrator and membership roster for each study section, click on the study section roster under the study section name within an IRG listed below or go to the study section index (study sections listed alphabetically) and click on the specified roster next to the name of the study section.

Genes, Genomes and Genetics IRG [GGG]

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Molecular Genetics A, B and C Study Sections [MGA, MGB and MGC]

[MGA Roster] [MGB Roster] [MGC Roster]

The Molecular Genetics study sections will review grant applications on the fundamental mechanisms and regulation of gene expression. This will include chromosome function and maintenance, chromatin structure and remodeling, DNA replication, recombination and repair, transcription, RNA processing, translation, and post-translational modification. Experimental approaches may include the use of whole organism, cell-culture, or cell-free studies, structural analyses, genomic technologies, chemical genetics, and informatics. While all three study sections will review applications on eukaryotic organisms, crosscutting studies on prokaryotes where results may be broadly applicable across kingdoms will be clustered in the Molecular Genetics A study section with related topics such as DNA repair and mutation.

Specific areas covered by MGA, MGB & MGC:

MGA

- Chromatin structure and remodeling
- DNA replication and cell cycle control

- DNA repair pathways
- Transcription mechanisms and regulation
- RNA processing and stability
- Protein synthesis and translational control
- Post-translational processes
- Protein ubiquitinylation and degradation

Additional areas may include:

- Prokaryotic molecular genetics
- Ribonucleoprotein assembly and transport
- Non-coding RNA
- Recombination
- Mutagenesis
- Extrachromosomal and organelle genetics
- Mobile genetic elements

MGB

- Chromatin structure and remodeling
- DNA replication and cell cycle control
- DNA repair pathways
- Transcription mechanisms and regulation
- RNA processing and stability
- Protein synthesis and translational control
- Post-translational processes
- Protein ubiquitinylation and degradation

Additional areas may include:

- Imprinting
- Dosage compensation
- Epigenetic processes
- Ribonucleoprotein assembly and transport
- Non-coding RNA
- Gene regulatory networks

MGC

- Chromatin structure and remodeling
- DNA replication and cell cycle control
- DNA repair pathways
- Transcription mechanisms and regulation
- RNA processing and stability
- Protein synthesis and translational control
- Post-translational processes
- Protein ubiquitinylation and degradation

Additional areas may include:

- Chromosome dynamics and structure
- Meiosis and segregation
- Cytogenetics
- Recombination
- Mutagenesis
- Extrachromosomal and organelle genetics
- Mobile genetic elements

The MG study sections have the following shared interests within the GGG IRG:

- **With Genomics, Computational Biology and Technology [GCAT]:** Studies that apply high-throughput, computational, and/or mathematical modeling approaches to processes covered by the Molecular Genetics study sections could be assigned to MGA, MGB, or MGC as appropriate. Development of emerging high-throughput, computational, network modeling, or mathematical approaches may be more appropriate for assignment to GCAT.

- **With Genetic Variation and Evolution [GVE]:** Studies addressing mechanistic questions about mutation, recombination, and chromosome dynamics could be directed to MGA, MGB, or MGC as appropriate. Studies with emphasis on evolutionary aspects, including statistical and quantitative methods, could be directed to GVE.

- **With Genetics of Health and Disease [GHD]:** Cytogenic studies relating to diagnosis or disease processes could be assigned to GHD. Studies that address fundamental questions about chromosome structure and organization could be assigned to MG. Studies on imprinting, X-inactivation, organelle genetics, recombination and DNA repair could be assigned to GHD if the emphasis is on genetic disease, and applications with a distinct human genetic focus could be assigned to GHD. If the focus is on molecular mechanisms, the application could be assigned to MG.

The MG study sections have the following shared interests outside the GGG IRG:

The MG study sections have shared interests in the study of genetic mechanisms with many IRGs. Applications that focus on fundamental mechanisms and/or regulation of DNA metabolism or gene expression could generally be assigned to MGA, MGB, or MGC. Studies that employ a particular organ, system or disease as a model for investigating basic genetic processes may be appropriate for MG.

- **With the Biological Chemistry & Macromolecular Biophysics [BCMB] IRG:** Shared interests include protein-nucleic acid interactions, nucleic acid enzymology, and structure/function studies of related macromolecular complexes. If the emphasis is on enzyme kinetics, detailed chemical reaction mechanisms, or high-resolution structure determination, the application could be assigned to BCMB. If structural analysis is one of several approaches to elucidate molecular genetic mechanisms, assignment could be to MGA, MGB, or MGC.

- **With the Cell Biology [CB] IRG:** Shared interests include chromosome duplication and dynamics, nucleocytoplasmic trafficking, and signal transduction pathways. If the focus is on molecular genetic mechanisms and/or regulation of DNA metabolism or gene expression, studies on nuclear transport, cell cycle control, apoptosis, and signaling pathways may be assigned to the MGA, MGB, or MGC study sections. Studies focusing on mitotic processes or on cytoskeletal or nuclear envelope assembly and dynamics may be assigned to CB.

- **With the Biology of Development & Aging [BDA] IRG:** Shared interests include regulation of differentiation and cell fate determination. Studies on fundamental molecular genetic questions of broad biological significance could be assigned to MG. Studies on genetic control of development and aging could be assigned to BDA.

- **With the Infectious Diseases & Microbiology [IDM] and AIDS & Related Research [AARR] IRGs:** Genetic studies of microbes where the results principally apply to microbes could be assigned to IDM or AARR. Genetic studies where the results apply broadly across kingdoms could be assigned to MG, particularly MGA.

- **With the Oncological Sciences [ONC] IRG:** Molecular genetic studies of cancer etiology, tumor pathogenesis, or organ-specific carcinogenesis could be assigned to ONC. Basic mechanistic studies of genetic stability, DNA repair, or of cell growth control and differentiation could be assigned to MGA, MGB, or MGC.

- **With the Organ-system/Disease IRGs - Hematology [HEME]; Cardiovascular Sciences [CVS]; Endocrinology, Metabolism, Nutrition, & Reproductive Sciences [EMNR]; Musculoskeletal, Oral, & Skin Sciences [MOSS]; Digestive Sciences [DIG]; Respiratory Sciences [RES]; and Renal & Urological Sciences [RUS]:** Assignment of a molecular genetics application to an organ-system/disease IRG or to MGA, MGB, or MGC should be based on the nature of the scientific question(s) being addressed. Studies directed at a single organ-system or disease could be assigned to the organ-system or disease IRG, even if basic approaches are used. Assignment could be to the MGA, MGB, or MGC if the question(s) addressed may be applicable to multiple diseases or organ systems, or if the study involves an emerging approach for which expertise resides in a MG study section.

- **With the Neuroscience IRGs - Molecular, Cellular & Developmental Neuroscience [MDCN]; Integrative, Functional, & Cognitive Neuroscience [IFCN]; and Brain Disorders & Clinical Neuroscience [BDCN]:** Applications with a primary focus on molecular genetic processes could be reviewed by the MGA, MGB, or MGC study sections. However, applications with a primary focus on neuroscience processes could be reviewed by one of the neuroscience IRGs. The distinction is whether neuroscience questions are being asked or whether the nervous system is being used as a convenient model.

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Genomics, Computational Biology and Technology Study Section [GCAT]

[GCAT Roster]

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The Genomics, Computational Biology and Technology Study Section will consider research applications involving global and integrative analyses of biological systems, and the development of new computational and experimental methodologies. These would include (1) large-scale projects providing genetic information or resources, (2) functional and comparative genomics, (3) the application of bioinformatics and computational methods for collection, storage, integration, analysis, modeling and dissemination of genetic information, and (4) the development and validation of new experimental approaches applicable to systematic analyses. These projects may pertain to humans or model systems.

Specific areas covered by GCAT:

- Large-scale genetic analyses (e.g., microarrays, genomics, genome sequencing, gene identification, and chemical genetics)
- Large-scale genetic resources (e.g., collections of mutant strains and lines, tagged genes, and small molecule probes)
- Comprehensive studies of specific systems (e.g., cell cycle, signal transduction, metabolic control, and disease pathways)
- Technology application for understanding simple and complex systems (single gene/protein as well as high throughput approaches)
- Computational and mathematical representation and simulation of genetic systems (e.g., genetic networks, signaling, physiology, and host-pathogen interactions)
- Analysis, mining, and integration of genetic data, including the development of new algorithms and statistical genetic methods
- Classification and annotation systems for genetic data
- Data storage, databases, and access to genetic information (e.g., user interfaces)
- Development of model organisms/systems for genetic, genomic, or high-throughput analyses

GCAT has the following shared interests within the GGG IRG:

In general the GCAT study section could review applications pertaining to new and emerging technologies, large-scale/high throughput studies, and computational modeling of genetic systems. Applications using established technologies applied to specific problems should be reviewed by other study sections.

- **With Molecular Genetics A, B, or C [MGA, MGB, or MGC]:** Studies that apply high-throughput, computational, and/or mathematical modeling approaches to processes covered by the Molecular Genetics study sections could be assigned to MGA, MGB, or MGC as appropriate. Development of emerging high-throughput, computational, network modeling, or mathematical approaches may be more appropriate for assignment to GCAT.

- **With Genetic Variation and Evolution [GVE]:** Large-scale studies of genetic variation and comparative genomics are shared interests. If studies are directed principally at understanding evolutionary processes or gene and genome evolution, including statistical methods, they could be assigned to GVE. If studies are directed principally at understanding such genetic or genomic questions as new and emerging genetic approaches, high throughput efforts, or computational modeling of genetic systems, they could be assigned to GCAT.

- **With Genetics of Health and Disease [GHD]:** Genome scale studies applying workable technologies and approaches to human diseases may be appropriate for assignment to the GHD study section. Large-scale genomic and global studies may be appropriate for assignment to the GCAT study section.

GCAT has the following shared interests outside the GGG IRG:

- **With the Biological Chemistry & Macromolecular Biophysics [BCMB], Cell Biology [CB], Biology of Development & Aging [BDA], Oncological Sciences [ONC], Immunology [IMM], and Infectious Diseases & Microbiology [IDM] IRGs:** Projects reviewed by GCAT may be pertinent to all areas of biology. For example, Biological Chemistry & Macromolecular Biophysics, Cell Biology and Biology of Development & Aging will cover topics related to the basic analysis of gene function, and other IRGs will cover aspects of genomics, proteomics, computational biology and technology related to specific organs and diseases. GCAT could review applications pertaining to new and emerging technologies, large-scale or high throughput studies, and

computational modeling of genetic systems. Applications using established technologies applied to specific problems could be reviewed by other IRGs.

- **With the Bioengineering Sciences & Technologies [BST] IRG:** Overlap is anticipated in the areas of statistical genetics, bioinformatics, and databases. If the focus is modeling technology or related analyses, bioinformatics or database technology, related computational analyses, or statistical methods for analyzing data, assignment to BST may be appropriate. If the focus is experimental, computational, or statistical investigation of questions related to genetics, regulation of gene expression, or genomics, assignment to GCAT may be appropriate.

- **With the Health of the Population [HOP] IRG**: Applications with a primary focus on the genetic etiology of a disease could be reviewed by the GCAT study section. Applications with a primary focus on genetics as a risk factor in an epidemiologic study could be reviewed by HOP.

- **With the Organ-system/Disease IRGs - Hematology [HEME]; Cardiovascular Sciences [CVS]; Endocrinology, Metabolism, Nutrition, & Reproductive Sciences [EMNR]; Musculoskeletal, Oral, & Skin Sciences [MOSS]; Digestive Sciences [DIG]; Respiratory Sciences [RES]; and Renal & Urological Sciences [RUS]:** Assignment of a gene/genomics/genetics application to an organ-system/disease IRG or to GCAT should be based on the nature of the scientific question(s) being addressed. Studies directed at a single organ-system or disease could be assigned to the organ system or disease IRG, even if basic approaches are used. Assignment could be to GCAT if the question(s) addressed may be applicable to multiple diseases or organ systems, or if the study involves an emerging approach for which expertise resides in GCAT.

- **With the Neuroscience IRGs - Molecular, Cellular & Developmental Neuroscience [MDCN]; Integrative, Functional, & Cognitive Neuroscience [IFCN]; and Brain Disorders & Clinical Neuroscience [BDCN]:** Applications with a focus on large-scale gene/genomic/genetic studies could be reviewed by the GCAT study section. Applications with a focus on neuroscience processes could be reviewed by MDCN, IFCN, or BDCN.

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Genetic Variation and Evolution Study Section [GVE]

[GVE Roster]xml:namespace prefix = "o" ns = "urn:schemas-microsoft-com:office:office" />

The Genetic Variation and Evolution Study Section addresses grant applications related to the origin, distribution, maintenance, and effects of genetic variation. It considers studies ranging from characterization of the genetic and phenotypic differences among individuals and species to the evolution of genomes and biological systems.

Specific areas covered by (but not limited to) GVE:

- Description and modeling of the levels and patterns of variation
- Analysis of induced and natural variation for Mendelian and complex traits
- Genotype-phenotype associations
- Use of natural variation for gene discovery and functional genomics
- Genetics of speciation
- Adaptive evolution
- Chromosome evolution
- Evolution and organization of genomes, including gene duplication, repetitive elements, and multigene families
- Evolution of gene regulation and regulatory circuits
- Evolution of development
- (Co) evolution of hosts and their symbionts/pathogens
- Genetic variation and environmental factors

These topics will be investigated in a variety of species, including humans, other animals, plants, and microbes. Approaches include molecular genetics; quantitative trait locus analysis, linkage and association mapping; experimental and theoretical population genetics; experimental or simulated evolution; phylogenetics; molecular evolutionary analysis; comparative genomics; gene expression and protein analyses.

GVE may welcome applications that attempt to dissect complex morphological, behavioral, physiological and fitness-related phenotypes. Proposals to be considered may also include the development of statistical methods for inferring evolutionary processes or mapping quantitative traits; development of new model systems relevant to these topics; community-wide resources, such as database and computational tools; and modeling the emergence of naturally occurring or intentionally released infectious diseases, including genetic, evolutionary and ecological mechanisms and interactions.

GVE has the following shared interests within the GGG IRG:

- **With Molecular Genetics-A, -B, & -C [MGA, MGB, & MGC]:** Studies addressing mechanistic questions about mutation, recombination, and chromosome dynamics could be directed to MGA,MGB, or MGC as appropriate. Studies with emphasis on evolutionary aspects could be directed to GVE.

- **With Genomics, Computational Biology and Technology [GCAT]:** Large-scale studies of genetic variation and comparative genomics are shared interests. If studies are directed principally at understanding evolutionary processes or gene and genome evolution, including statistical methods, they could be assigned to GVE. If studies are directed principally at understanding such genetic or genomic questions as new and emerging genetic approaches, high throughput efforts, or computational modeling of genetic systems, they could be assigned to GCAT.

- **With Genetics of Health and Disease [GHD]:** Genetic variation and complex trait mapping are shared interests. GVE may be appropriate for applications emphasizing evolutionary aspects of complex trait analysis and comparative genomics, including experimental, statistical, and theoretical methods. GHD may be more appropriate for applications emphasizing human variation in disease.

GVE has the following shared interests outside the GGG IRG:

- **With the Biology of Development & Aging [BDA] IRG:** Shared interests are in the study of the genetic variation of aging and the evolution of development. If the primary focus is to characterize natural variation or test evolutionary models or to elucidate evolutionary processes, the application could be assigned to GVE. An application using established genetic technologies applied to specific questions of development or aging could be assigned to BDA.

- **With the Bioengineering Sciences & Technologies [BST] IRG:** Shared interests include computational methods and informatics. Applications specifically addressing statistical and computational analyses of genetic variation or evolution could be reviewed by GVE. Applications addressing broader statistical and computational questions could be reviewed by the BST IRG.

- **With the Immunology [IMM] IRG:** Proposals addressing genetic variation and evolution of immune responses could be reviewed by GVE. Applications using established genetic technologies applied to immunological problems could be reviewed by IMM.

- **With the Infectious Diseases & Microbiology [IDM] and AIDS & Related Research [AARR] IRGs:** Applications specifically addressing genetic variation and evolution of infectious agents could be reviewed by GVE. Applications using established genetic technologies applied to the study of specific infectious agents could be reviewed by IDM/AARR.

- **With the Organ-system/Disease IRGs - Hematology [HEME]; Cardiovascular Sciences [CVS]; Endocrinology, Metabolism, Nutrition, & Reproductive Sciences [EMNR]; Musculoskeletal, Oral, & Skin Sciences [MOSS], Digestive Sciences [DIG], Respiratory Sciences [RES], and Renal & Urological Sciences [RUS]:** Assignment of a genetic analysis of complex traits application to an organ-system/disease IRG or to GVE should be based on the nature of the scientific question(s) being addressed. Studies directed at a single organ-system or disease could be assigned to the organ system or disease IRG, even if basic approaches are used. Assignment could be to GVE if the question(s) addressed may be applicable to multiple diseases or organ systems, or if the study involves an emerging approach for which expertise resides in GVE. Thus, proposals mapping genes affecting variation in complex traits could be considered by GVE; applications emphasizing functional and mechanistic studies could be assigned to the appropriate disease or organ system IRG.

- **With the Neuroscience IRGs - Molecular, Cellular & Developmental Neuroscience [MDCN]; Integrative, Functional, & Cognitive Neuroscience [IFCN]; and Brain Disorders & Clinical Neuroscience [BDCN]:** Applications with a focus on genetic variation or evolution could be reviewed by the GVE study section. However, applications with a primary focus on neuroscience processes could be reviewed by MDCN, IFCN, or BDCN.

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Genetics of Health and Disease Study Section [GHD]

[GHD Roster]xml:namespace prefix = "o" ns = "urn:schemas-microsoft-com:office:office" />

The GHD Study Section will review applications involving the discovery, application and interpretation of genetic and genomic variation in human phenotype and disease.

Specific areas covered by GHD:

- Genetic basis of Mendelian and non-Mendelian human diseases
- Mapping and identification of normal and disease phenotypes, including those associated with rare disorders
- Genetic and epigenetic phenomena such as imprinting, X inactivation, repeat expansions, genetic recombination and DNA repair, where genetic disease is emphasized
- Non-Mendelian traits including mitochondrial and organelle diseases
- Quantitative genetics of complex traits, genetic dissection, including QTL (quantitative trait locus) mapping
- Disease-related variations including SNPs (single nucleotide polymorphisms) and haplotypes
- Cytogenetics and chromosome disorders
- Genome architecture and genomic disorders
- Pharmacogenetics and biochemical genetics, including inborn errors of metabolism
- Interaction of the genome with exogenous factors including environment and maternal genotype
- Explicit models of human diseases, including mouse, Drosophila, zebra fish, and other organisms
- Genetic, pre-implantation and prenatal diagnostics
- Therapeutic approaches to genetic disease including gene and protein replacement therapy
- Translational genetics, including outcome studies concerning genotype-phenotype correlation and the application of fundamental genetics to clinical practice
- Genetic epidemiology, population and newborn screening, and public health applications of genetics

GHD has the following shared interests within the GGG IRG:

- **With Molecular Genetics-A, -B, & -C [MGA, MGB, & MGC]:** Cytogenetic studies relating to diagnosis or disease processes could be assigned to GHD. Studies that address fundamental questions about chromosome structure and organization could be assigned to MG. Studies on imprinting, X-inactivation, organelle genetics, recombination and DNA repair could be assigned to GHD if the emphasis is on genetic disease. If the focus is on molecular mechanisms, such applications could be assigned to MG.

- **With Genomics, Computational Biology and Technology [GCAT]:** Genome scale studies applying workable technologies and approaches to human diseases may be appropriate for assignment to the GHD study section. Large-scale genomic and global studies may be appropriate for assignment to the GCAT study section.

- **With Genetic Variation and Evolution [GVE]:** Genetic variation and complex trait mapping are shared interests. GVE may be appropriate for applications emphasizing evolutionary aspects of complex trait analysis and comparative genomics, including experimental, statistical, and theoretical methods. GHD may be more appropriate for applications emphasizing human variation in disease.

GHD has the following shared interests outside the GGG IRG:

- **With the Bioengineering Sciences & Technologies [BST] IRG:** Gene transfer and therapies are shared interests. Applications on gene therapy for human genetic disorders may be assigned to GHD. Applications on developing technology for gene transfer may be assigned to BST.

- **With the Health of the Population IRG [HOP] IRG:** Applications with a primary focus on the genetic etiology of a disease could be reviewed by the GHD study section. Applications with a primary focus on genetics as a risk factor in an epidemiologic study could be reviewed by HOP.

- **With the Neuroscience IRGs - Molecular, Cellular & Developmental Neuroscience [MDCN]; Integrative, Functional, & Cognitive Neuroscience [IFCN]; and Brain Disorders & Clinical Neuroscience [BDCN]:** Applications with a focus on gene/genomic/genetic disease could be reviewed by the GHD study section. However, applications with a primary focus on neuroscience processes could be reviewed by MDCN, IFCN, or BDCN. Thus, proposals focusing on gene discovery and the genetic dissection of non-Mendelian human diseases and traits using complex or novel technologies may be more appropriate for GHD, while those using established genetic methods to study Mendelian diseases or complex diseases and traits where a specific gene unambiguously has been identified may be more appropriate for other IRGs.

- **With the Organ-system/Disease IRGs - Biology of Development & Aging [BDA]; Immunology [IMM]; Oncological Sciences [ONC]; Hematology [HEME]; Cardiovascular Sciences [CVS]; Endocrinology, Metabolism, Nutrition, & Reproductive Sciences [EMNR]; Musculoskeletal, Oral, & Skin Sciences [MOSS]; Digestive Sciences [DIG]; Respiratory Sciences [RES]; and Renal & Urological Sciences [RUS] :** Assignment of a genetic disease application to an organ-system/disease IRG or to GHD should be based on the nature of the scientific question(s) being addressed. Studies directed at a single organ-system or disease could be assigned to the organ system or disease IRG if the focus is primarily on the elucidation of specific known disease mechanisms, molecules, or pathways. Assignment could be to GHD if the study uses molecular or other methods for gene discovery in complex, non-Mendelian diseases, or if the study involves an emerging approach for which expertise resides in GHD. Thus, proposals focusing on gene discovery and the genetic dissection of non-Mendelian human diseases and traits using complex or novel technologies may be more appropriate for GHD, while those using established genetic methods to study Mendelian diseases or complex diseases and traits where a specific gene unambiguously has been identified may be more appropriate for other IRGs (e.g., ONC, BDA, DIG, IMM, RUS, or EMNR).

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Gene Therapy and Inborn Errors [GTIE] Special Emphasis Panel

(This is a recurring Special Emphasis Panel.)

[GTIE Roster]

Genetic basis of defects in lipid, amino acid, carbohydrate and nucleic acid metabolism and organelle function and development of strategies for their correction. This can include investigation of inborn errors of metabolism, mitochondrial defects, mechanism of mutation and gene silencing, replacement or repair.

Specific areas covered by GTIE:

- Development of gene therapy approaches for metabolic diseases, including lysosomal, peroxisomal and mitochondrial storage diseases, affecting multiple organs
- Molecular genetics of viral and non-viral vectors within target cells and tissues:
- Studies of transduction, integration, replication and repair, gene expression and gene silencing mechanisms in animal and human tissues and in animal models of diseases
- Studies of inborn errors and other rare diseases: including biochemical genetics to elucidate regulation and dysregulation in metabolic pathways; studies of genetic mutations, transcriptional networks, protein structure/function and post-translational modifications; clinical manifestations; diagnosis and treatment development
- Development of in vitro and animal models of disease for gene therapy investigation

GTIE has the following shared interests within the GGG IRG:

- **With Genetics of Health and Disease:** GTIE and GHD both review applications dealing with the genetic basis of inborn errors of metabolism. If the application is focused on gene identification, assignment could be to GHD. If the focus is to understand molecular phenotypic effects of genetic alterations or developing gene therapy approaches for the disorder, assignment could go to GTIE.

- **With Molecular Genetics A, B, & C:** MG study sections and GTIE review applications dealing with DNA replication repair, recombination and gene expression and silencing. Applications with a basic science context may be assigned to the MG study sections; applications with a disease or gene therapy context may be assigned to GTIE.

GTIE has the following shared interests outside the GGG IRG:

- **With the Endocrinology, Metabolism, Nutrition & Reproductive Sciences [EMNR], Musculoskeletal, Oral, & Skin Sciences [MOSS], AIDS & Related Research [AARR], Oncological Sciences [ONC], Immunology [IMM], Infectious Diseases & Microbiology [IDM], Cardiovascular Sciences [CVS], Digestive Sciences [DIG], Hematology [HEME], Respiratory Sciences [RES], and Renal & Urological Sciences [RUS] IRGs** with respect to gene therapy of metabolic diseases. If the application concerns a particular disease or organ system, assignment could be to the disease/organ IRG. If the application concerns issues of broad interest to the field of gene therapy, multiple organs or an emerging approach, assignment could be to GTIE.

- **With the Neuroscience IRGs - Brain Disorders & Clinical Neuroscience [BDCN], Integrative, Functional, & Cognitive Neuroscience [IFCN], and Molecular, Cellular, & Developmental Neuroscience[MDCN]** in the study of metabolic disorders that affect the function of the nervous system. If neuropathology is the main focus, the application could be assigned to BDCN, IFCN, or MDCN, if a metabolic defect, issues of broad interest to the field of gene therapy, or an emerging genetic approach is the main focus, then assignment could be to GTIE.

- **With the Bioengineering Sciences & Technologies [BST] IRG** with respect to gene and drug delivery systems. If the focus is on bioengineering, development, design, or validation of drug delivery systems, the assignment could be to BST. If the focus is on gene therapy, the assignment could be to GTIE.

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Ethical, Legal, and Social Implications of Human Genetics Special Emphasis Panel [ELS]

[ELS Roster]

The Ethical, Legal, and Social Implications of Human Genetics [ELS] Special Emphasis Panel reviews ethical, legal, and social implications of human genetics.

Specific areas covered by ELS:

- Psychosocial, ethical, and legal issues for both consumers and professionals in testing for genetic diseases including cancer
- Sociological/anthropological studies related to human genetics;
- Philosophical studies;
- Genetic policy studies; and history of science studies.

ELS has no shared coverage within the GGG IRG

ELS has the following shared interests outside the GGG IRG:

- **With the Health of the Population [HOP] IRG** in the area of ethics. Applications that emphasize social and behavior issues rather than genetics are more appropriate for the HOP IRG.

- **With the Biology of Development & Aging [BDA] IRG** in the area of international bioethics. Applications that emphasize ethics in the genomic context are appropriate for ELS. Applications that emphasize ethics in the international context are appropriate for BDA.

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Genes, Genomes and Genetics Small Business Activities [SBIR/STTR] Special Emphasis Panel [GGG Small Business SEP] [GGG (10)]

[SBIR/STTR Rosters]**xml:namespace prefix = "o" ns = "urn:schemas-microsoft-com:office:office" />**

The Genes, Genomes and Genetics Small Business Activities Study Section [GGG (10)] considers SBIR/STTR

applications involved in areas of genetics, genomics, and nucleic acid technology. This includes but is not limited to: (1) applications of emerging technologies and methodologies for gene identification and analysis, and analysis and manipulation of gene expression. (2) comparative genomic studies, whole genome scans, gene expression analysis and development of molecular genetic tools (e.g. microarrays, oligonucleotide probes, bioinformatics software) and (3) applications of oligonucleotide chemistries (synthesis, amplification, detection) involving DNA, RNA, and their analogs for diagnostic and expression analysis and regulation.

Specific areas covered by the GGG Small Business SEP:

- Genetic and genomic analysis: detection of polymorphisms, genetic epidemiology, linkage analysis, molecular diagnostics of genetic diseases and pharmacogenomic studies

- Emerging technology for genome analysis: detection of polymorphisms, genetic mapping of SNPs and ESTs (expressed sequence tags), statistical genetics, clinical and molecular cytogenesis, sequence databases and annotation, and genomic libraries

- Emerging technology for functional genomics: nucleic acid hybridization probes development and DNA microarrays assays applied to gene discovery and gene regulation, expression profiling and databases, cellular arrays, cDNA libraries, and EST discovery and analysis

- Emerging technology for molecular genetics: modulation and detection of gene expression, nucleic acid metabolism, and nucleic acid enzymology

- Emerging oligonucleotide technologies: development of DNA, RNA, and RNA interference (RNAi) molecules;

- Technologies for gene therapy and production of transgenic species: expression of recombinant DNA, artificial chromosomes, and antisense technologies

The GGG Small Business SEP has the following shared interests outside the GGG IRG:

- **With the Biological Chemistry & Macromolecular Biophysics [BCMB] IRG**: Proteomics: BCMB may be appropriate for studies of analytical protein instrumentation development and RNA or protein structure and function prediction. Applications proposing molecular genetic approaches for protein expression may be appropriate for GGG. For nucleic acid chemistries - BCMB may be appropriate for applications focused on organic synthesis of new nucleic acid analogs, while GGG may be appropriate if the focus is on sequence-based technologies.

- **With the Infectious Diseases & Microbiology [IDM] and AIDS & Related Research [AARR] IRGs:** Applications proposing molecular genetic, genomic or genetic technologies that principally apply to microbes could be assigned to IDM or AARR. Applications focused on technologies that apply broadly across kingdoms could be assigned to GGG. Applications concerned with emerging genetic technologies may be more appropriate for GGG.

- **With the Organ-system/Disease IRGs - Hematology [HEME]; Cardiovascular Sciences [CVS]; Endocrinology, Metabolism, Nutrition, & Reproductive Sciences [EMNR]; Immunology [IMM]; Oncological Sciences [ONC]; Musculoskeletal, Oral, & Skin Sciences [MOSS]; Digestive Sciences [DIG]; Respiratory Sciences [RES]; Renal & Urological Sciences [RUS]; Molecular, Cellular & Developmental Neuroscience [MDCN]; Integrative, Functional & Cognitive Neuroscience [IFCN]; Brain Disorders & Clinical Neuroscience [BDCN]:** Assignment of a molecular genetics/genomics/genetics application to an organ-system/disease IRG or GGG should be based on the nature of scientific question(s) being addressed. Studies that are directed at the organ disease could be assigned to the organ/disease IRG, even when genetics, genomic or molecular technologies are being developed. Assignment could be to GGG if the focus of applications is on emerging genetic or genomic technologies(s) or if multiple diseases or organ systems are being studied.

- **With the Bioengineering Sciences & Technologies [BST] IRG:** The main areas of shared interest involve gene delivery systems, technologies for molecular detection and analysis, and statistical and bioinformatics analyses. For gene delivery technology studies, if the focus is on analysis or modulation of gene expression, production of transgenic animals, or evaluation of gene therapy vectors, GGG could be appropriate. If the focus is studies of development of delivery vehicles, or delivery strategies, BST could be appropriate. For molecular detection and analysis studies, if the focus is on development of assays specifically for gene detection, analysis of gene expression, or other questions of specific genetic interest, GGG may be appropriate. For applications proposing

statistical and bioinformatics analyses, if the focus is on statistical genetic methods, generation of genome or gene expression data, or other questions of specific genetic interest, GGG could be appropriate. If the focus is on broadly applicable bioinformatic approaches, BST could be appropriate.

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Genomics, Genetics, DNA Replication, and Gene Expression Fellowship Study Section [F08]

Genomics, Genetics, DNA Replication, and Gene Expression

[Genes, Genomes and Genetics (GGG) Integrated Review Group]

[F08 Roster]

F08 reviews fellowship applications in genomics and genetics, DNA replication and related mechanisms, and genomic and molecular aspects of gene expression. Both prokaryotic and eukaryotic biological systems (e.g., animals, bacteria, fungi, parasites, plants, viruses, etc.) are covered in this study section. The specific disciplines are as follows:

- Chromosome structure and function
- Complex genetic traits and diseases
- DNA replication, recombination, and repair (including telomeres, transposable elements, and molecular cell cycle)
- Genome stability
- Transcription, RNA Processing and Translation
- Gene expression and regulation
- Genetics
- Genomics (including functional genomics)
- Population genetics and evolution
- Statistical genetics

Shared Interests:

With F04B (Biophysical and Biochemical Sciences) regarding biophysics: Applications focused on enzymological or structural aspects of nucleic acids and nucleic acid protein interactions may be assigned to F04B; applications focused on mechanisms of DNA replication/repair and gene expression/regulation may be assigned to F08. Furthermore, a biophysical study of DNA or RNA may be assigned to F04B.

With F05 (Cell Biology and Development) regarding nuclear and chromosome structure and function: F05 may review fellowship applications on nuclear organization and function, including chromosome architecture, meiosis and mitosis in relation to cell cycle, signaling of cell cycle and gene expression, and nuclear import and export; F08 may review fellowship applications on molecular aspects of gene expression/regulation and its relationship to chromatin/chromosome structure and function, molecular mechanisms of meiosis, and mitosis and maintenance of the genome.

With F09 (Oncological Sciences): Applications focused on oncological aspects of genomics, genetics, DNA repair, and regulation of gene expression may be assigned to F09. Applications focused on fundamental aspects of genomics, genetics, DNA repair, and regulation of gene expression may be assigned to F08.

With F10 (Physiology and Pathobiology of Organ Systems): Applications with a focus on the pathology and physiology of organ systems may be assigned to F10. Applications with a focus on the genetic basis of disease or fundamental aspects of genomics, genetics, and regulation of gene expression may be assigned to F08.

With F13 (Infectious Diseases and Microbiology): Studies focused on genetic studies of microbes where the results principally apply to microbes may be assigned to F13. Studies using microbes as models that are broadly applicable across kingdoms for genetics, genomics, and molecular aspects of gene expression including chromatin structure function, DNA replication and repair, transcription, RNA processing and translation may be assigned to F08.

With the Behavioral Genetics and Epidemiology (BGES) study section: Epidemiologic and genetic studies that focus on mental health disorders (e.g., schizophrenia, depression) and/or substance abuse that involve human populations (not laboratory studies) may be assigned to BGES. Epidemiologic and genetic studies that focus on fundamental genetics and/or laboratory studies may be assigned to F08.

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